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A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
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Dear Sir:

New contract awards for submarine nuclear reactor systems have been made by Navy Department to General Electric Co., and Westinghouse Electric Corp. A $6,786,280 contract was given GE for two such systems it will assemble at its Lynn, Mass., plant, while Westinghouse received a $6,770,030 contract to construct two such systems at its Pittsburgh plant. Contracts call for delivery between late 1959 and mid-1960. (In another recent award, fixed price contract of $6,360,341 has been given GE for construction of propulsion machinery for the Navy's first three 5,600-ton nuclear powered submarines capable of firing the Polaris guided missile. For these Polaris vessels, Westinghouse is supplying reactor components, except cores, under an $18,630,000 Navy contract.) (Other CONTRACTS AWARDED, BIDS ASKED, page 2 this LETTER.)

Decision to purchase complete nuclear power plant from British sources has been made by the Japan Atomic Power Co. Japanese mission, headed by D. Yasukawa, had visited both U.S. and Britain before deciding to buy from British suppliers; three concerns there have now been invited to submit bids on specifications laid down by the Japanese organization. Contract award is expected to be made by September, 1958, for the plant which is to have an electrical output of 150,000 kw. Natural uranium fuel for the reactor will be supplied by U.K. Atomic Energy Authority. Other BUSINESS NEWS, page 2 this LETTER.)

Second edition of Sourcebook on Atomic Energy by Samuel Glasstone is now being offered by the publisher D. Van Nostrand Co., Princeton, N.J. Dr. Glasstone had prepared the original edition of this useful work under USAEC contract, some years ago; its second edition is revised and contains a new chapter on nuclear reactors. Containing 562 pages, it is priced at $4.40. (Other BOOKS, page 5 this LETTER.)

A 25% stock interest in Radiation Applications, Inc., New York, has been purchased by Schenley Industries, Inc., in that firm's first venture in the nuclear field. Radiation Applications, which does consulting and research work in nuclear energy, chemistry, metallurgy, etc., operates a laboratory in Long Island City providing commercial gamma irradiation service; a cobalt-60 source is used. It also markets a radiation unit for industrial laboratory use. H. J. Casey, secretary of Schenley, and Bruno Puetzer, director of research of SchenLabs Pharmaceuticals, will join the Radiations Applications board of directors. (Other FINANCIAL NEWS, page 3 this LETTER.)

Construction of a large experimental breeder reactor at the national reactor testing station, Idaho Falls, Idaho, by Argonne National Laboratory, will be supported by the appropriation of $29,100,000 which has been obtained by the USAEC for its design and construction. The reactor, to be known as experimental breeder reactor no. 2 (EBR-2), will be an integral nuclear power plant with a complete fuel processing and fabrication facility in addition to the reactor, heat transfer systems, and steam-electric plant. (Other DEVELOPMENT WORK, page 4 this LETTER.)

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ATOMIC ENERGY BUSINESS NEWS...

NUCLEAR POWER PLANT PROPOSAL ACCEPTED BY USAEC:- Proposal of Pennsylvania Power & Light Co., jointly with Westinghouse Electric Corp., to build nuclear power plant to be operated on Pennsylvania Power's system has been found acceptable by the USAEC. Contract will therefore be negotiated by the USAEC with the companies. The proposed project would use a reactor of the homogeneous type with net electrical output of 70,000 to 150,000 kw. It would operate on the thorium-uranium cycle, whereby the chain reaction is sustained by uranium while thorium is converted to new uranium to replace the fuel consumed by the chain reaction; this is a low cost fuel cycle. Cost of the project, scheduled for completion by the end of 1963, is estimated at $108 million. This includes Pennsylvania Power-Westinghouse research and development costs of $5.5 million; $57 million for plant construction; and $16 million for excess operating costs for the first five years of operation. Under the proposal, the USAEC is asked to supply $7 million for 1958-59 research and development; to provide approximately $18 million for additional research and development (after decision to construct plant); and to waive for the first five years of operation fuel use charges valued in excess of $4 million.

FUELS TECHNOLOGY CENTER PLANNED:- A $10 million fuels technology center to expand research on handling and using plutonium is planned for Argonne National Laboratory (operated by University of Chicago under prime USAEC contract), Lemont, Ill. Architect-engineers for the project are Singmaster & Breyer, New York. Major objective of research to be conducted at the new center will be to design plutonium fuels for use in today's nuclear reactors. Another objective is to develop plutonium breeding.

ADDITION TO CRITICAL LABORATORY PLANNED TO ASSIST IN NUCLEAR PROJECTS:- Expansion of its critical laboratory at Lynchburg, Va., is planned by Babcock & Wilcox Co., to include a 10 kw pool-type test nuclear reactor. The unit will be used primarily to conduct experiments involving nuclear fission at elevated temperatures, and also to test products of B&W's nearby nuclear fuel plant. It will be used specifically to assist in three nuclear projects for which B&W holds prime contracts. These are the nuclear portion of Consolidated Edison Co.'s Indian Point, N.Y., nuclear power station; the nuclear propulsion system for the NS Savannah, the first U.S. nuclear powered merchant ship; and the development of an advanced type of reactor using liquid-metal fuel for the USAEC.

CONTRACT AWARDS MADE FOR NUCLEAR PROJECTS:- Rocketdyne Division of North American Aviation, Inc., has received U. S. Air Force contract for series of development studies on Project Rover, a program to develop a nuclear powered rocket. Propulsion of the rocket by using nuclear energy to heat a gas (such as ammonia, hydrogen, helium, etc.) is one approach under study. (Meanwhile, USAEC intends to put $10.5 million more of its funds into development work on Project Rover).....Contract to construct buildings and other facilities for the Shield Test Pool Facility at national reactor testing station, Idaho Falls, Idaho, has been awarded W. R. Cahoon Construction Co., Pocatello, Idaho, by the USAEC. (The STPF installation will supplement other facilities operated for the USAEC by General Electric Co., prime contractor in one phase of the aircraft nuclear propulsion program. Specifically, it will be used for testing prototypes or mockups of nuclear powered aircraft which have incorporated certain shield materials and configurations for protection of personnel from ionizing radiation. Approximate areas and dimensions will be the same as those expected to exist in actual aircraft.)

INDUSTRIAL GAMMA IRRADIATION SERVICE DISCONTINUED BY USAEC:- Since there are now sixteen academic and industrial organizations in the U.S. offering gamma irradiation service on a commercial basis, the USAEC is discontinuing such service by its own facilities, effective the end of this month. (List of these facilities, showing gamma flux available, etc., may be obtained on request to the USAEC's Office of Industrial Development, Washington 25, D.C.)

LICENSES ISSUED:- Amendment to construction permit of Commonwealth Edison Co., Chicago, has been granted by USAEC approving design of reactor containment vessel for Dresden, Ill., plant; this is subject to consideration of final hazard summary report on this matter.....Amendment to facility license of University of Michigan has been permitted by USAEC to allow project there to temporarily bypass certain control interlocks during performance of safety rod calibration.....Amendment to construction permit of American Radiator & Standard Sanitary Corp. has been granted by USAEC to allow moving location of the firm's proposed reactor.

ATOMIC ENERGY FINANCIAL NEWS...

MERGERS PLANNED:- Merger of Lindsay Chemical Co., Chicago. into American Potash & Chemical Corp., has been agreed upon by boards of directors of the two companies. Merger is subject to approval by shareholders; there are 361,614 common shares of Lindsay outstanding. The plan calls for Lindsay shareholders to receive one share of American Potash for each share held. Lindsay, largest supplier in the U.S. of thorium to the USAEC, is a pioneer processor of rare earths. (India and other rich sources of monazite sands, from which thorium is extracted, have long embargoed their export under "control of fissionable materials" acts. Lindsay consequently uses mineral sands dredged in the U.S., of which it has a substantial stockpile, for sourse of its rare earths.) If the merger goes through, Lindsay will be a division of American Potash.....Merger of the computer division of Alwac Corp., New York, and El-Tronics, Inc., Philadelphia, has resulted in the Dr. Axel L. Wenner-Gren interests becoming the largest shareholders of El-Tronics. Alwac, which manufactures medium-scale digital electronics computers, is controlled by Swedish Telephone & Relay Corp., a company which is controlled by Dr. Wenner-Gren. Under terms of the consolidation, El-Tronics is issuing 300,000 shares of its common stock and $600,000 par value 10-year debentures for Alwac's computer division assets. The merger will give El-Tronics European outlets for its electronic and nucleonic products; agreements have already been worked out between El-Tronics and enterprises on the continent in which Dr. Wenner-Gren holds interests.

STOCK SPLIT BY REACTOR MANUFACTURER:- Aerojet-General Corp., which is becoming increasingly active in the nuclear field through its nuclear division, intends to split the company's common stock ten-for-one, Dan Kimball, president, told the New York Society of Security Analysts last week. Stockholders will vote on the proposal March 26th. General Tire & Rubber Co. owns 87% of Aerojet common shares, of which about 432,000 are outstanding of a total of 1,200,000 authorized. The split would increase authorized common stock to 12 million shares and outstanding common to about 4,320,000 shares. To date, Mr. Kimball noted, the company's nuclear division (Aerojet-General Nucleonics) has delivered 11 small reactors and has a contract to develop a gas-cooled reactor for the USAEC and the Department of the Army. He said the firm would probably concentrate on building small rather than large reactors; the nucleonics business holds great promise, he told the group.

SALES & EARNINGS REPORTED BY FIRMS IN NUCLEAR FIELD:- Net income for Beryllium Corp. for 1957 was $1,013,670 compared with $930,074 for 1956; sales were also higher in 1957. Year's results were given by W. R. Lowry, Beryllium president, who noted that in 1957 the company opened a new $4 million plant in Hazelton, Pa., which will make pure beryllium metal and beryllium oxide. This Hazelton plant was built after the USAEC awarded the company a contract to supply it with 1 million pounds of pure beryllium metal over a five year period. Mr. Lowry stated that the USAEC has now indicated it may reduce procurement under the contract "on the order of 50%".

Tracerlab, Inc., Waltham, Mass., pioneer nuclear products firm has now reported substantial loss for 1957; this follows loss for 1956. The company feels, however, that with second half results greatly improved over those of the first six months, that prospects for 1958 are quite favorable.

Lower profit margins of Vanadium Corp. of America on vanadium uranium mining and milling operations have resulted in lowered net for 1957 compared with record 1956 earnings, W. C. Keeley, president, has now stated. The company reported sales for 1957 of $54,500,000 compared with $64,343,293 for 1956; net income for 1957 was about $4,000,000 compared with 1956 net of $5,945,970. (Vanadium Corp., one of the pioneer uranium milling operations in the U.S., is now operating at high capacity.)

Kerr-McGee Oil Industries, Inc., with main income from its oil properties (although its uranium operations are becoming substantial) showed a decline in net income for the first six months ended December 31, 1957 some $177,000 below the comparable year ago period. Income drop was recorded despite gross income of over $65 million, against nearly $48.1 million for the 1956 period. R. S. Kerr, chairman, and D. A. McGee, president, reported that the $31 million of financing for Kermac Nuclear Fuels Corp. had been completed, with $24 million obtained from banks, and $7 million from private sources. Construction of Kermac's 3,600 tons per day uranium processing mill in the Ambrosia Lake area of New Mexico is underway, they noted, with shafts and underground development work underway in three other mines the company owns.

NEW PRODUCTS, PROCESSES, INSTRUMENTS...for nuclear lab & plant...

NEW PRODUCTS FROM MANUFACTURERS:- Micro-microammeter (Model V) is for detection and remote indication of minute quantities of radioactivity in room air. Circuits may be so arranged that alpha, beta and gamma radiation from up to 20 rooms may be monitored remotely, with colored lamps on the instrument panel indicating room being monitored. Audible alarms may also be used with the monitor.--Beckman Instrument division, Fullerton, Calif.

Developed specifically for nuclear reactor applications, a new line of ion chambers is said to operate successfully to 300 deg. C. The line includes compensated and uncompensated neutron sensitive chambers, gamma sensitive chambers, fission counters, and propositional counters. All are sealed chamber units, resistant to radiation damage, and constructed of low activation materials. Developed originally for military use, they have been redesigned and are now offered for commercial applications.--Instrument Department, General Electric Co., W. Lynn, Mass.

PRODUCT NEWS:- A nuclear "package fuel" plan, now being offered by Sylvania-Corning Nuclear Corp., Bayside, N.Y., which relieves Sylcar customers of details and charges until the completed fuel elements are delivered, is believed to be the first plan of its kind in the nuclear industry. Sylcor arranges and pays for conversion of uranium hexafluoride to uranium oxide or metal, the basic nuclear materials used to produce nuclear fuel elements. Under the plan, Sylcor quotes its customer one fixed price for the delivery of the completed elements; loss and scrap reprocessing and obtaining allocations for extra material will not be the customer's responsibility.

Appropriation of $20 million has now been asked from Congress by Navy for modification of the second nuclear powered submarine built, the Seawolf. It is proposed to remove the sodium-cooled reactor, as originally furnished, and replace it with a pressurized water type reactor, similar to the installation on the Nautilus.

A suggestion that lower nuclear fuel costs would stimulate development of nuclear power in the U.S. was made last fortnight by M. Michaelis, of Arthur D. Little, Inc., at hearings in Washington of the Joint Congressional Committee on Atomic Energy. Mr. Michaelis asserted the present high cost of nuclear fuel is a principal factor in retarding development of nuclear power. He asked that the Government set the guaranteed price level at a low net price and in such a manner as to avoid undue influence on the technological trend of reactor development. Mr. Michaelis noted that if this is done, the Government will temporarily remove any profit incentive for industry to enter the Government-operated segments of the fuel business immediately. This effect should be temporary only, he stated; when the demand grows, the Government will withdraw and industry will enter the fuel business on a realistic basis.

MANUFACTURERS' NEWS:- New eastern Canadian representative of Baird-Atomic, Inc., is Radionics, Ltd., 8230 Mayrand St., Montreal, Canada. Radionics will handle the atomic instruments and systems produced by this Cambridge, Mass. manufacturer. .....West coast sales office at Burlingame, Calif., has been opened by Sylvania-Corning Nuclear Corp., with J. A. Vadeboncoeur made marketing manager, western region, for the firm. Mr. Vadeboncoeur, a metallurgist, had been since 1952 associated with the Naval nuclear program of Westinghouse Electric's atomic power division..... Further expansion of its facilities to provide additional production capacity and a larger experimental department is being made by Radiation Instrument Development Laboratory, Inc., at 5737 S. Halstead St., Chicago.

NEW PROCESSES:- New x-ray inspection technique developed by High Voltage Engineering Corp., Burlington, Mass., is now being used by Thiokol Chemical Corp. to inspect solid rocket and missile fuel charges. Method of operation consists of rotating and raising the fuel charge, spiral-fashion, about the x-ray source which in this case is a special 10-foot electron tube extension of a standard High Voltage supervoltage machine. The source is monitored on a Friez Instrument Lumicon receiver outside, and a continuous radiographic picture is obtained.

DEVELOPMENT WORK:- Two large nuclear detonations occurred last Thursday (Feb. 27) at the Russian testing range in the Siberian Arctic region; they followed a large detonation Sunday (Feb. 23rd) in the same area. All were large yield explosions in the megaton range, and involved fusion reactions.

Attainment of controlled nuclear fusion reactions in experiments at the University of Osaka has been reported by Yasuji Fushimi, chairman of the Japan Academy of Sciences Atomic Energy Committee. Dr. Fushimi said that temperatures of 1-million deg.C., for 1-millionth of a second, were achieved.

ATOMIC ENERGY PATENT DIGEST...latest grants & other news...

ISSUED February 18th, 1958 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:- (1) Controlling scintillometer temperature. G. Herzog, inventor. No. 2,824,233 assigned to The Texas Co., New York, N.Y. (2) Sensitivity adjustment for radioactivity well logging. G. Swift, inventor. No. 2,824,236 assigned to Well Surveys, Inc.

ISSUED February 18th, 1958 to GOVERNMENT ORGANIZATIONS:- (1) Recovery of thorium and uranium values from aqueous solutions. G. D. Calkins, inventor. No. 2,823,976 assigned to USAEC. (2) Method of dissolving uranium metal. Louis A. Slotin, inventor. No. 2,823,977 assigned to USAEC. (3) Precipitation method of separating plutonium from contaminating elements. J. B. Sutton, inventor, No. 2,823, 978 assigned to USAEC. (4) Reactor unloading. M. C. Leverett, inventor. No. 2,824,056 assigned to USAEC. (5) Method and means for radiation dosimetry. J. W. Schulte, J. F. Suttle, inventors. No. 2,824,234 assigned to USAEC. (6) Ionization chamber. W. C. Redman, F. R. Shonka, inventors. No. 2,824,252 assigned to USAEC.

ISSUED February 25th, 1958 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:- (1) Secondary diaphragms for x-ray radiography. S. H. Ledin, inventor, No. 2,824,970 issued to inventor of record.

ISSUED February 25th, 1958 to GOVERNMENTAL ORGANIZATIONS:- (1) Soldering of aluminum base metals. G. F. Erickson, inventor. No. 2,824,365 assigned to USAEC. (2) Apparatus for melting and pouring metals. F. A. Harris, inventor. No. 2,824,732 assigned to USAEC. (3) Separation of scandium from aqueous solutions. D. F. Peppard, E. S. Nachtman, inventors. No. 2,824,783 assigned to USAEC. (4) Method for preparation of stable actinide metal oxide-containing slurries and of the oxides therefor. R. S. Hansen, R. F. Minturn, inventors. No. 2,824,784 assigned to USAEC. (5) Scintillator composition for counters and method of making. W. L. Buck, R. K. Swank, inventors. No. 2,824,841 assigned to USAEC. (6) Calutron. M. D. Kamen, inventor. No. 2,824,967 assigned to USAEC. (7) Neutron detector. I. F. Weeks, inventor. No. 2,824,971 assigned to USAEC. (8) Radiation detector system. J.C. Gundlach, G. G. Kelley, inventors. No. 2,824,973 assigned to USAEC. (9) Radiation detector. J. R. Parsons, inventor. No. 2,824,974 assigned to Department of the Navy.

TRADE-MARKS:- Mark "AGN", with design, is to be granted Aerojet-General Corp., Azusa, Calif., by trade-mark division, U.S. Pat. Off. Mark, under SN 30,543 has been published for opposition; it is to cover nuclear reactors and accessory equipment.

NEW BOOKS & OTHER PUBLICATIONS...

Radioisotopes; A New Tool for Industry, by Sidney Jefferson, Isotope Division, Atomic Energy Research Establishment, Harwell, England. Commercial and industrial applications of radioisotopes. 110 pages.--Philosophical Library, Inc., New York 16, N. Y. ($4.75)

Preliminary Design Study of a Food Irradiation Reactor; Phase 2. Discusses system consisting of a fully enriched, light-water cooled and moderated heterogeneous reactor core surrounded by blanket of indium sulphate in light water; work was done by Internuclear Co., Inc., for the USAEC. 98 pages. No. AECU-3320.--Office of Technical Services, Wash. 25, D. C. ($2.50)

Thorium, by J. E. Crawford. Preprint from Bureau of Mines' Minerals Yearbook (1955) to be issued at a later date.--Superintendent of Documents, Wash. 25, D.C. (10¢)

NOTES:- Nuclear Data Sheets are now being issued by the National Academy of Sciences to replace the monthly Nuclear Data Cards originally issued by the Academy. The sheets, of which about 100 are issued each month, may be obtained from the Academy, 2101 Constitution Ave., N.W., Washington, D. C. at $15 per year.

New journal in the USAEC's technical progress review series is Reactor Fuel Processing. It is a quarterly, with the February, 1958 issue volume 1 number 1. Annual rate is $2 per year within the U.S.; $2.50 abroad. Subscriptions may be entered with the Superintendent of Documents, Wash. 25, D. C.

MANUFACTURERS' LITERATURE:- Technical report on the generation of gamma rays for radiation research and commercial radiation processing is now available on request (Arco report AM-100) from Applied Radiation Corp., Walnut Creek, Calif.

Details of Actigraph II radio-chromatogram scanning system are in January, 1958 issue of The Nucleus, obtainable from Nuclear-Chicago Corp., Chicago 10.

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

March 4th, 1958.